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ABSTRACT

The Vineland Adaptive Behavior Scales (VABS) and the Scales of Independent Behavior (SIB) were administered to the mothers of 40 preschoolers (23 females and 17 males) in a day care situation. The children ranged in age from 47 to 74 months. Mothers were interviewed to determine if any changes had taken place in the behavior of the children between administration of one instrument and administration of the other instrument 7 days later. Pearson product moment correlations were calculated for: (1) the global adaptive behavior scales; (2) motor subscales; (3) communication subscales; (4) daily living (personal) skills subscales; and (5) the social skills subscales of the VABS and SIB. A hypothesis that proposed significant correlations between specific VABS and SIB global scales was supported in part. A second hypothesis suggesting a relationship between parental occupation and the adaptive behavior scores of their children was tested via an analysis of variance, which indicated that the highest level of occupation did relate to global scores on both instruments, to community living scores on the SIB, and to communication domain scores on the VABS. Both instruments appeared to measure adaptive behavior. Implications of the findings for specific subscales are discussed. Two tables present correlations and means and standard deviations for the subscales. (SLD)

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# CORRELATIONAL STUDY OF THE SCALES OF INDEPENDENT BEHAVIOR AND THE VINELAND ADAPTIVE BEHAVIOR SCALES

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SIB and Vineland performance of 40 preschoolers was examined. Subjects attended a day care center in a midwestern community and the majority of the parents had post high school education. The instruments were administered one week (7 days) apart. Significant correlations were found between the BIS and ABC, between the Motor Skills Domain and the Motor Skills Cluster, and between the Personal Living Skills subtest and the Daily Living Skills Domain. A positive relationship was found between parent occupation and the BIS, ABC, Communication Domain and Community Living Skills Cluster. This may be due to SES or other variables related to parent occupation such as amount of time spent with the child.

Witt (1984) estimates that there are over 100 adaptive behavior tests. These range from behavior checklists which have not been standardized and can be completed and scored by a teacher or parent to adaptive behavior scales which have been standardized and require trained personnel in the administration and scoring of the instrument. There are three adaptive behavior scales which appear to be used most often. They are the Vineland Social Maturity Scale, Adaptive Behavior Inventory for Children (part of SOMPA), and the Adaptive Behavior Scale, Public School Version (Paget,1983, Sattler,1982, Witt, 1984). Although the three adaptive behavior scales discussed here are the most popular, that does not mean they are the "best" instruments to be used for the assessment of adaptive behavior. Witt (1984) suggests that consumers review the content of the instruments and psychometric properties such as validity and reliability. Witt also emphasizes that there is no one test of adaptive behavior which meets the needs of all situations. The consumer should review the merits of the instrument in light of the assessment's purpose. "While there are many adaptive behavior scales, it is important to recognize that each scale covers only certain types of behaviors and that no one scale covers all areas" (Sattler, 1982, p. 326). In a table listing ten adaptive behavior scales Witt (1984) included 12 possible administration formats. This indicates the variety of possibilities in measuring adaptive behavior. Some adaptive behavior assessments are "bastardized versions of scales designed originally for use in institutional settings" (Witt, 1984, p. 481) and are not appropriate for school children. This makes it difficult to judge the merits of an adaptive behavior scale by just reading the manual. A consumer must also look at the content.

Coulter (1978) divides the current issues confronting the measurement of adaptive behavior into two main themes, identification/placement and intervention/programming. Identification/placement includes questions concerning bias toward minorities, relationship between I.Q. and adaptive behavior measures, and measurement. How do we know that adaptive behavior is reducing minority placement bias? When we look at the psychometric properties of the various adaptive behavior scales there is often a moderate to high correlation between I.Q. measures and at least one of the subtests, and this is more common with those subtests measuring communication skills or other cognitive areas (Witt, 1984). Does this mean that I.Q. can be replaced by adaptive behavior measures? Measurement issues within the area of identification/placement include; (a) Do we need specific norms for each minority group, (b) Who is the most appropriate source of information (parents, teacher, or professional), and (c) Who should collect the data and how much training do they need? (Coulter, 1978).

In his summary, Coulter states that the future of adaptive behavior assessment will probably be "dictated more by political-legal directions taken by society

and various groups that encompass the diverse environment in which we live than by any gains made in scientific knowledge" (Coulter, 1978, p. 223).

From Coulter (1978) and Witt (1984) it becomes clear that identification of children with special needs may be influenced by the content included, method of administration used, and respondent selected for each adaptive behavior measure. This indicates that each adaptive behavior scale may yield different results under similar headings of behavior. A child scoring in the normal range on one instrument may be significantly below average on another.

## Method

### Subjects

A total of 40 subjects (from a pool of 56) participated in the study, including 23 females and 17 males which resulted in a participation rate of 71%. Subjects were drawn from a private day care facility in a midwestern town (population 10,000) about 20 miles from a major metropolitan area. Administration of the two instruments ranged from seven to 14 days apart. The System of Multicultural Pluralistic Assessment Occupational Classification (SOMPA) (Mercer, 1979) was used to categorize parent occupational status. Of the
40 subjects the highest parental occupational status was unemployed or unskilled for 7.5%, skilled for 10%, highly skilled for 32.5%, middle-level professional for 32.5%, and high level professional for 17.5%.

Subjects ranged in age from 47 months to 74 months with a mean age of 59 months. The majority of the parents (43%) had B.A. Degrees. Education of parents ranged from High School Graduate to Doctorate. Children in this study had up to 5 years in a structured daycare setting with 40% of the children having had 2 to 3 years in daycare.

### Procedure

The Vineland and the SIB were administered to mothers in a counter balanced order one week (7 days) apart. After the second instrument was administered four interview questions were asked to ascertain if any events had taken place to change the mother's perception of the child's behavior after the first instrument was administered. No change in subject behavior was reported between administrations of the instruments.

## RESULTS and Discussion

Pearson product moment correlations were calculated for the global adaptive behavior scales, motor subscales, communication subscales, daily living (personal) skills subscales, and social skills subscales of the SIB and Vineland. These results are presented in Table 1. Table 1 presents the correlation coefficients and significance level for the global and domain standard scores. Correlations between the Broad Independence Scale (BIS) and the Adaptive Behavior Composite (ABC) are high ($r = .64$, $P < .001$). The BIS has the highest correlation with Motor Skills (MS) ($r = .86$, $p < .05$). Social and Communication Skills (SC), Personal Living Skills (PL), Community Living Skills (CL), Daily Living Skills Domain (DL), and Socialization Domain (SD) are also significant at the $P < .001$ level when correlated with the BIS. The Motor Skills Domain (MO) correlates with the BIS at the $P < .01$ level and Communication Domain (CD) correlates with the BIS at the $P < .05$ level.

TABLE 1

CORRELATIONS BETWEEN SIB GLOBAL AND CLUSTER STANDARD SCORES AND VINELAND GLOBAL AND DOMAIN STANDARD SCORES

| VAR | ABC | MS | SC | PL | CL | CD | DL | SD | MD |
|---|---|---|---|---|---|---|---|---|---|
| BIS | .64*** | .86*** | .61*** | .69*** | .69*** | .29* | .48*** | .49*** | .43** |
| ABC | | .59*** | .34* | .45** | .37** | .57*** | .68*** | .79*** | .66*** |
| MS | | | .31* | .61*** | .46** | .06 | .47*** | .44** | .60*** |
| SC | | | | .16 | .42** | .35* | .21 | .25 | .10 |
| PL | | | | | .27* | .14 | .52*** | .26 | .29* |
| CL | | | | | | .27* | .18 | .35* | .13 |
| CD | | | | | | | .15 | .32* | .10 |
| DL | | | | | | | | .39** | .40** |
| SD | | | | | | | | | .30* |

* P < .05
** P < .01
*** P < .001

TABLE 2
MEANS AND STANDARD DEVIATIONS for the GLOBAL SCALES of the SIB and VINELAND

| VARIABLE | MEAN | SD |
|---|---|---|
| * Broad Independence Scale (BIS) | 108 | 8.91 |
| Adaptive Behavior Composite (ABC) | 106 | 9.93 |
| * Motor Skills (MS) | 101 | 8.69 |
| * Social & Communication Skills (SC) | 101 | 7.85 |
| * Personal Living Skills (PL) | 104 | 12.93 |
| * Community Living Skills (CL) | 102 | 10.93 |
| Communication Domain (CD) | 102 | 9.50 |
| Daily Living Skills Domain (DL) | 107 | 9.56 |
| Socialization Domain (SD) | 110 | 11.90 |
| Motor Skills (MO) | 100 | 10.51 |

* Denotes SIB Scales

There was a significant correlation between the BIS and ABC. The BIS also had significant correlations with all SIB Cluster scores and the ABC had significant correlations with all Vineland Domain scores. The correlation between MS and MO was significant and MS also yielded a significant correlation with PL. Although PL's strongest correlation was with MS, it yielded a significant correlation with DL. Nonsignificant correlations were found between SC, CD, and SD and between CL and DL.

Analysis of variance techniques were used to examine the demographic data (age, parent's occupation and education, number of years a child had attended a structured daycare, number of children in the family, mother's occupation, educational placement (grade), and sex) collected on the participants. A post hoc analysis using the Scheffe' procedure for multiple comparisons was accomplished in order to detect possible statistical significance for pairwise comparisons within the analysis of variance. Results of this procedure indicated that children of parents in the highest occupational classification received significantly ($p < .05$) higher BIS and ABC scores than children of parents in the middle or low occupational classification. Children of parents in the high occupational group also obtained significantly ($p < .05$) higher CL scores than children of parents in the low occupational group. CD scores for children of parents in the high occupational group were also significantly higher than those of children whose parents were in the middle occupational group.

Significant correlations were found between the ABC and BIS, MS and MO, and PL and DL. With significant correlations between and ABC and BIS it appears that the Vineland and SIB are assessing a similar construct. The Vineland manual (Sparrow, 1984) and SIB manual (Bruininks, 1985) provide evidence of content, criterian, and construct validity. The significant correlation between the ABC and BIS supports construct validity for both instruments.

MS and MO have similar definitions of motor behavior and have fine and gross motor skills as subscales. The significant correlation between MS and MO is probably due to the similar definitions of motor behavior. PL and DL also share similar subscales. PL has Eating, Toileting, Dressing, Self-Care, and Domestic Skills as subscales and DL has Personal (living skills), Domestic (skills), and Community (living skills) as subscales. Only Community living skills appears to be somewhat different from the subscales on the SIB. The Community living questions are similar to the questions on the CL. However, the Community living questions on the DL make up about 40% of the questions at the four year to six year age range. This emphasis on Community living skills may have suppressed the correlation between PL and DL.

There were nonsignificant correlations between SC, CD, and SD. Although all three scales involve communication and social skills, SD does not show a significant correlation with SC, but SD does correlate significantly ($p < .05$) with CD. It appears that for this sample SC and SD are assessing different behaviors. SC did correlate significantly with CL and this was also found by interrcorrelation of SIB subtests in the original standardization sample (Bruininks, Woodcock, Hill, & Weatherman, 1985). SD and SC may not assess similar behavior overall because of the emphasis on communication within the SC subtest. Communication behaviors are not emphasized in the SD subtest. The SIB manual (Bruininks, 1984) identifies social interaction, language comprehension, and language expression as the three areas assessed by the SC subscale. Communication items make up approximately 64% of the total questions in the SC subscale. A review of protocols from this study shows approximately the same number of items from social, language expression, and language

comprehension areas were attempted. Therefore the total of the SC subscale score has approximately 67% of its items measuring communication. The communication scores make up about 2/3 of the cluster score which is used to obtain the SC standard score. The emphasis on language and communication may be the reason for the nonsignificant correlation with SD and a significant correlation with CD. Nonsignificant correlations were also found between CL and SD. CL is defined as assessing the skills related to the subject's level of independence in areas necessary for "successful use of community resources, integration in employment, and other social and economic opportunities" (Bruininks, 1984, p. 22). SD is defined as how the individual interacts with others, plays and uses leisure time, and demonstrates responsibility and sensitivity to others (Sparrow, 1984). SD focuses on socialization which is a part of CL but apparently not strong enough to result in a significant correlation. CL has its strongest subtest correlation with MS ($p < .01$, $r=.46$). This indicates that the behaviors measured by the CL subtest may be dependent on some motor behaviors. On the SIB motor skills (MS) also appear to be important to the subtest PL with $p < .001$, $r=.61$. The correlations of SIB subtests with the norming sample yield similar coefficients. These results indicate that motor skills may affect scores on the PL and CL subtests at this age level.

The SIB subtests should be interpreted by using their component areas. The SC subscale which includes socialization skills and language skills can be used as an example. The SC standard score is comprised of both language and socialization factors. From the standard score it is not possible to separate language and socialization development. The Vineland has separate domains for communication, daily living skills, socialization, and motor skills. Within each of these domains there are subdomains which further delineate the behaviors which make up the domains. The clusters on the SIB with definitions which most closely match the definition of a Vineland domain appear to have the highest correlation.

The results of the analysis of variance indicate that the highest level of occupation does relate to global scores on the SIB and Vineland, CL scores on the SIB, and CD scores on the Vineland. Children with parents in the highest occupation group received the highest mean global scores on the SIB and Vineland and the highest subtest scores on CL and CD. Standardization of the SIB and Vineland did not use parent's occupation as a variable for standardization. However, the Vineland did use education as a variable and there was a modest but positive increase in scores as the parents' education increased. The effects of education and occupation on adaptive behavior scores may be an indication that children of the higher SES families receive higher scores due to their environment. Haywood and Switzky (1986) identify genetic determination and environmental conditions as the two most important factors affecting intelligence and cognitive processing in children. Grossman (1983) notes that factors associated with parental status can affect a child's language and cognitive growth. Disadvantaged children often have restrictive speech patterns and may exhibit maladaptive behaviors. "Children from working-class homes average some 10-20 points below their middle-class age mates on standardized intelligence tests" (Shaffer, 1985, p. 406). Mercer (1985) felt these factors were of such importance that SOMPA included parent occupation as part of the child's assessment. Higher scores may occur because parents with higher occupational status have more time to spend with their children. CL has a moderate correlation with SC and a low but significant correlation with CD. These subtests measure communication and socialization

skills. These may be areas in which parents with higher occupational status influence their children through modeling or direct instruction.

The significant inverse relationship between AGE and MO standard scores appears to be due to ceiling effects. On the Vineland the MO subscale was standardized through age 5-11-30. Children over this age may have a prorated score although it is only recommended for children with suspected physical deficits. Only one subject in this study received a prorated score due to age. The other subjects fell within the age ranges on which the MO was standardized. However, at the age of 5-10-0 to 5-11-30 the raw score of 66 receives a standard score of 84 while the raw score of 72 receives a standard score of 113. This results in approximately 5 standard score points for each raw score point. The sample of behavior is small for each increase (decrease) in MO standard score because this range in raw score points covers only 3 items. The last two items are catching a ball while the child is moving and riding a bicycle without training wheels. This study was conducted between October and January and due to the climate these skills may develop during the Winter months but would not be observed until the following Summer. The relationship between AGE and MO appears to be due to ceiling effects associated with a small sample of behavior at the upper extreme of the scale and behaviors which may be present but not observed due to climate.

## Implications

The Vineland and SIB appear to measure different components of adaptive behavior within their subscales. The strongest correlations were obtained between the global scales and motor subscales. The SIB has included some components which appear to be separate and distinct areas within the SC subscale and these should be interpreted individually. Within the Vineland domains questions are oriented toward a specific behavior such as communication. The CD has receptive, expressive, and written communication as the subdomains. This makes interpretation of the domain scores more meaningful since a single construct is assessed in the domain. Unlike the SC cluster the PL and CL clusters include a more homogenious set of subscales.

Both the SIB and Vineland appear to measure adaptive behavior and the significant correlation of the ABC and BIS indicates that global scores are measuring similar behaviors. To decide which instrument is best for a particular client will depend on the referral questions which need to be answered. The Vineland separates communication, daily living skills, and socialization skills by domains. These domains are made up of subdomains which relate to each of the areas. Although the SIB does not have a Cluster score for communication skills it does have a Community Living Cluster which is not available on the Vineland as a major area of behavior. The CL has Time and Punctuality, Money and Value, Work Skills, and Home-Community subscales which may be appropriate for certain clients. The test user should identify the information needed to answer the referral question and then select the instrument which assesses those skills.

A review of the literature did not reveal any relevent articles on the SIB or Vineland beyond those cited. Both instruments are designed for use in the diagnosis of Mental Retardation (MR) and other disabilities. Since an MR diagnosis may limit a persons access to regular education it is important to continue to research the merits of these instruments.

## RECOMMENDATIONS FOR USING THE SIB AND VINELAND

The SIB and Vineland are different instruments although both report a global adaptive behavior score. Validity studies which assess the major factors contributing to the subdomains and subscales should be carried out. This would allow the examiner to interpret the results with greater certainty. Standard scores for subdomains and subscales should be calculated and made available to test users. They would improve the accuracy of clinical interpretation and research comparisons.

The SIB and Vineland use different methods for administration. The SIB is read to the respondent while the Vineland uses a discussion format. It is recommended that research be conducted to evaluate changes in scores when the respondent reads the questions on the SIB. This may save time and save the voice of the examiner.

While reviewing the Vineland domain intercorrelations listed in the Survey Form Manual (Sparrow, 1984) it was noticed that the intercorrelations with the ABC were not reported. These correlations should be reported.

This study indicates a relationship between occupation and adaptive behavior scores. Further research should be conducted to assess the effects of parents' occupation on childrens' adaptive behavior, achievement, and ability. The separation of SES variables and their influence on children could indicate where social influence in the form of family support would be most beneficial.

The Vineland and SIB appear to be measuring the same construct. SIB and Vineland clusters and domains have higher correlations when the definitions of the constructs measured are similar. This is evident with the motor scales which have similar definitions for the area assessed and have similar subscales. There was an inverse relationship between the subject's age and standard score on MO. This appears to be due to ceiling effects of the MO and emphasizes the need for further research on the relationship of child development and age with adaptive behavior scores. Parent occupation appears to affect the ABC and BIS. This indicates that there may be a significant relationship between adaptive behavior scores and SES. Instruments which measure Adaptive behavior should be subjected to research on the effects of age and SES variables on adaptive behavior scores. Research on cognitive ability (intelligence) has included investigation of SES and demographic influence on I.Q., adaptive behavior assessment should receive the same scrutiny.

## SUMMARY

Hypothesis 1 which proposed significant ($p < .05$) correlations between specific Vineland and SIB global scales and subscales was supported in part. The ABC and BIS showed a significant correlation, the MO and MS showed a significant correlation, and the PL and DL showed a significant correlation. SC did not have a significant correlation with SD, but did with CD. This may be due to the emphasis on communication within the SC subtest. Correlation between PL and DL did not result in significant correlations and may be due to motor skill influences on the behaviors sampled by these two subtests. CL correlated with SD at $p < .05$ but the $r=.35$ was lower than the other significant correlations. The lower correlation may be due to motor influences since CL and SD have their highest subtest correlations with MS.

Hypothesis 2 was supported except for positive relationships found between Occupation (OCCUP) and the ABC, BIS, CL, and CD and an inverse relationship between Age and MS. For this sample it appears that the highest level of occupation (according to SOMPA) does significantly increase the global adaptive behavior scores. This increase may be due to SES or other

variables related to parents' occupation such as time spent with children. The significant inverse relationship between Age and MS appears to be due to ceiling effects on that domain. For the upper age range the sample of behavior is small and the standard scores change in 5 point increments for each raw score point.

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